

CUTTING TOOLS AND ROUGHENED ARTICLES
USING SURFACE ROUGHENING METHODS

ABSTRACT

The disclosure relates to surface roughening methods in which a cutting tool having a radial cutting blade with first and second cutting edges is fed along a longitudinal axis of an article while rotating the cutting tool about the axis. The first cutting edge forms a first machined pattern of peaks and valleys on a surface of the article, and the second cutting edge removes at least a portion of the peaks to form roughened fracture surfaces in a second machined pattern defining an arrangement of grooves, corresponding to the valleys, separated by lands, corresponding to the roughened fracture surfaces. The cross section of the grooves is substantially asymmetrical, and each groove may further include a notch. The disclosure also provides cutting tools useful in practicing the surface roughening methods. The disclosure further describes cylindrical articles having interior or exterior surfaces roughened using the methods. The methods, cutting tools and articles have applications including fabrication of cylinder blocks for internal combustion engines.